

ASSEM TECHNOLOGY 岱煒科技股份有限公司

岱煒科技股份有限公司
ASSEM TECHNOLOGY CO.,LTD.
SPECIFICATION FOR APPROVAL

PROJECT NAME: AH2 BTB

20-AH20S-XXXXX-XXX (Socket)

PART NO.: 20-AH20H-XXXXX-XXX (Header)

Prepared by	Checked by	Approved by
Wayne Lien	Steven Chang	Taylor Chang

PRODUCT NAME : 0.35mm pitch mating height 0.6mm BTB Connector

REV: X6

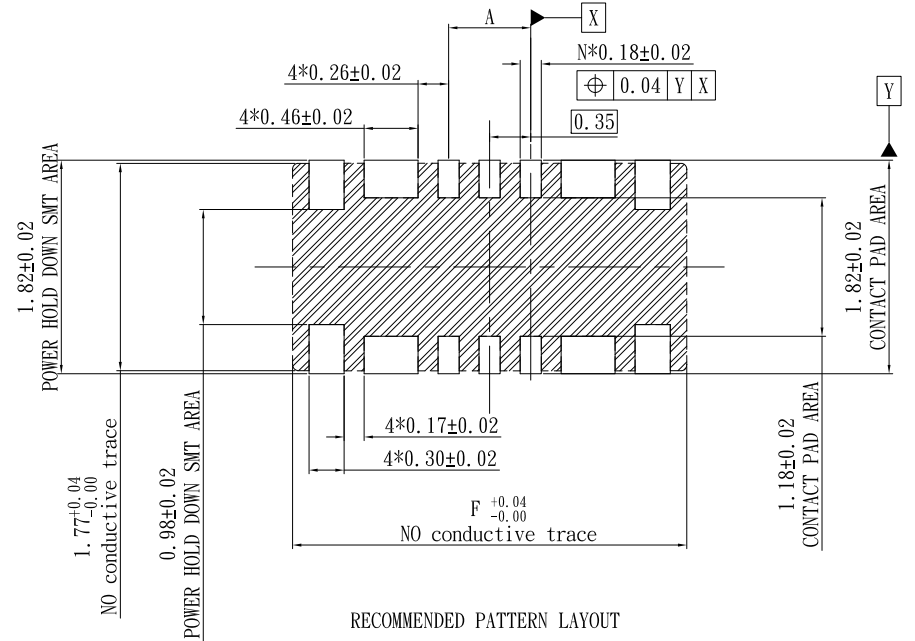
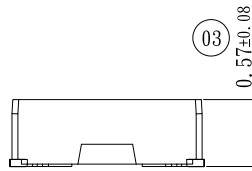
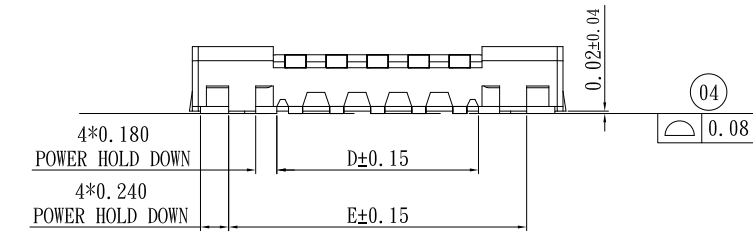
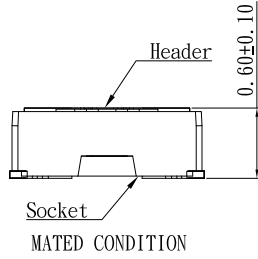
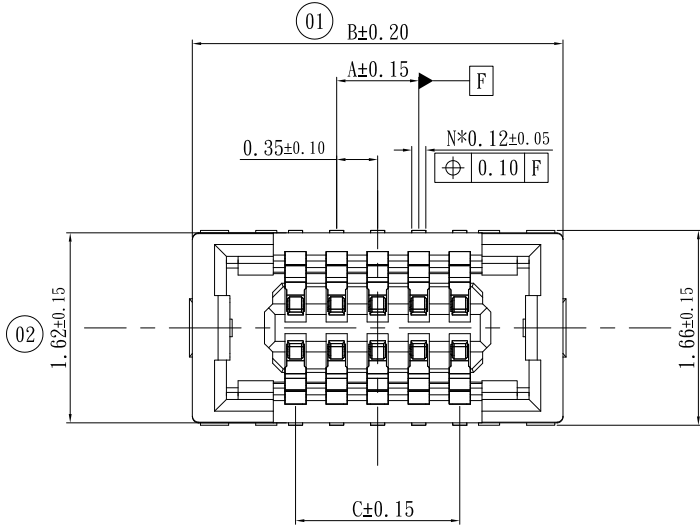
ISSUE DATE: 2022-11-01

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Customer

REV.	ECN NO.	DESCRIPTION	DATE	PREP.	CHK	APPR.
X1	DW002119	NEW RELEASE	2022. 12. 28	Wayne	Steven	Taylor

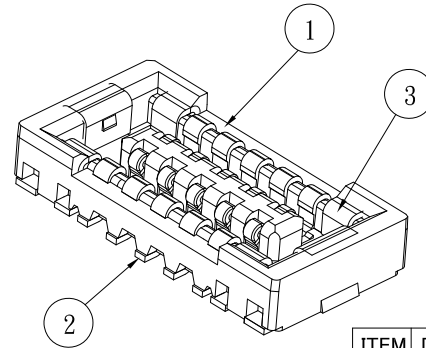
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8	1.05	3.51	1.75	2.07	2.89	3.71
10	1.40	3.86	2.10	2.42	3.24	4.06
12	1.75	4.21	2.45	2.77	3.59	4.41
16	2.45	4.91	3.15	3.47	4.29	5.11



- NOTES :
- MARK "XX" IS MAJOR DIMENSION.
 - COPLANARITY : 0.08 MAX.
 - RoHS Compliant
 - Part No. : 20-AH20S-XXB00-001

No. OF SERIES _____

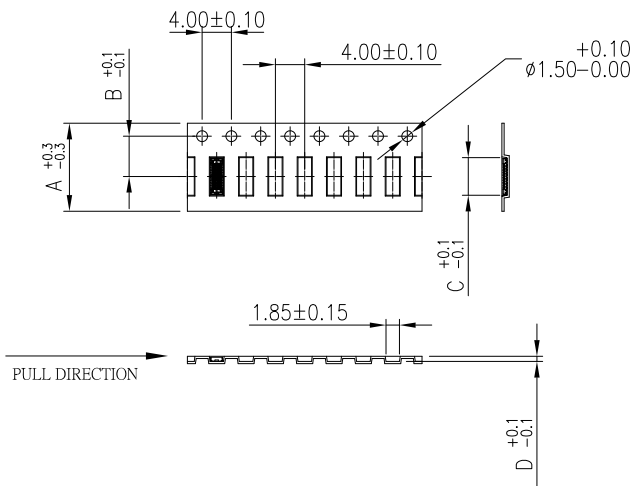
S : SOCKET _____ Contacts No. _____



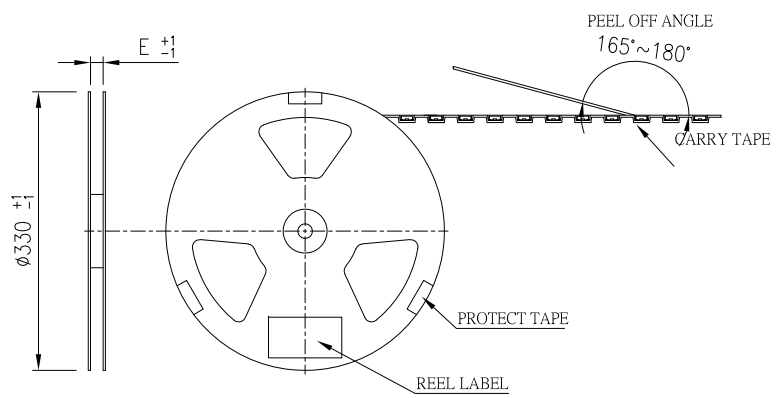
ITEM	DESCRIPTIONS	QTY.	MATERIAL	FINISH	REMARKS
①	HOUSING	1	HIGH TEMP.PLASTIC	BLACK	UL94-V0
②	CONTACT	-	COPPER ALLOY	Contact area: Gold Flash over Ni 50µ" Min. Solder area:Gold Flash over Ni 50µ" Min.	-
③	POWER PIN	2	COPPER ALLOY	Contact area: Gold Flash over Ni 50µ" Min. Solder area:Gold Flash over Ni 50µ" Min.	-

General tolerance		P / N		TITLE	
DIMENSION	ANGLES	20-AH20S-XXB00-001		0.35 Pitch AH2 Board to Board Mating height 0.6mm Socket Approval	
.X ±0.30	X. ° ±2°	PREP.	Wayne	Original Date	2022. 12. 28
.XX ±0.20	X.X' ±1°	CHK.	Steven	SCALE	UNIT
.XXX ±0.15	X.XX' ±0.5°	APPD.	Taylor	16:1	mm
				REV.	SHEET
				X1	1 / 1
				ATC ASSEM TECHNOLOGY CO., LTD.	

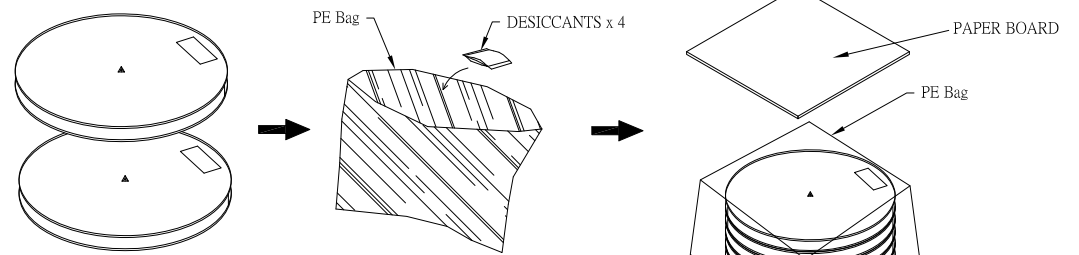
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			X1	PS000075	NEW RELEASE	2023.1.9	Wayne	Steven	Taylor



Reel package (EIAJ ET - 7200B) MATERIAL : PS



Note :
 1.Part No. : 20-AH20S-XXB00-001
 No. Of Series
 S : Socket Contacts No.



16	16	6.75	5.10	0.77	17.4	15000 pcs	5	75000 pcs	145
12	12	5.5	4.40	0.77	12.5	15000 pcs	5	75000 pcs	145
10	12	5.5	4.05	0.77	12.5	15000 pcs	5	75000 pcs	145
8	12	5.5	3.70	0.77	12.5	15000 pcs	5	75000 pcs	145
6	12	5.5	3.35	0.77	12.5	15000 pcs	5	75000 pcs	145
2	12	5.5	2.65	0.77	12.5	15000 pcs	5	75000 pcs	145
PIN	DIM A	DIM B	DIM C	DIM D	DIM E	Reel	Reels	Carton	DIM F

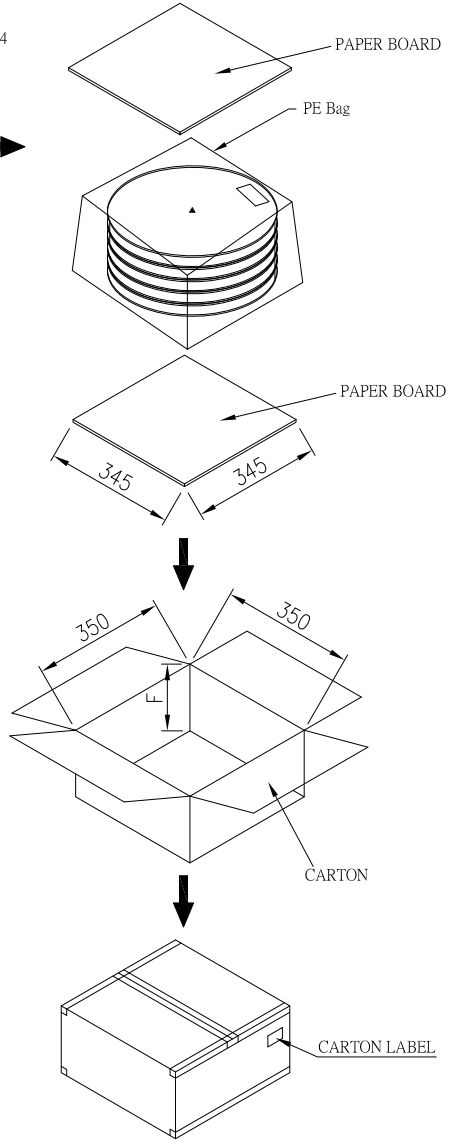
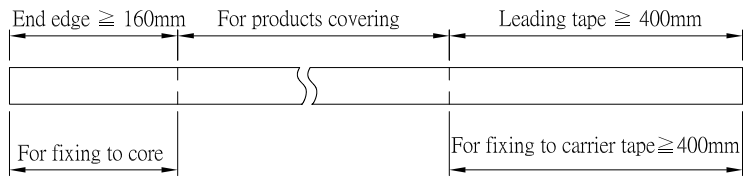
CARTON LABEL (10 * 6 * 1 mm)

Description	
Part No.	
Quantity	
N. W	
G. W	

REEL LABEL (10 * 6 * 1 mm)

Assem Technology Co., Ltd	
Description	
Part No.	
Quantity	
Date Code	

Cover Tape MATERIAL : PET

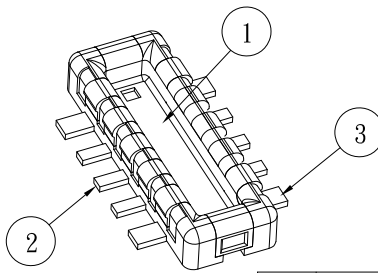
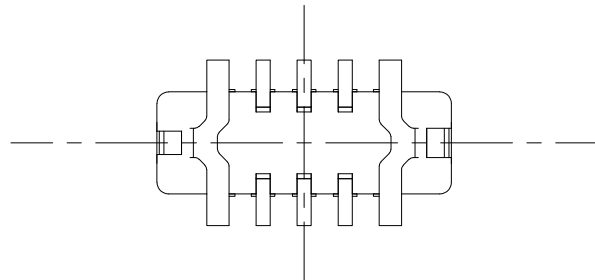
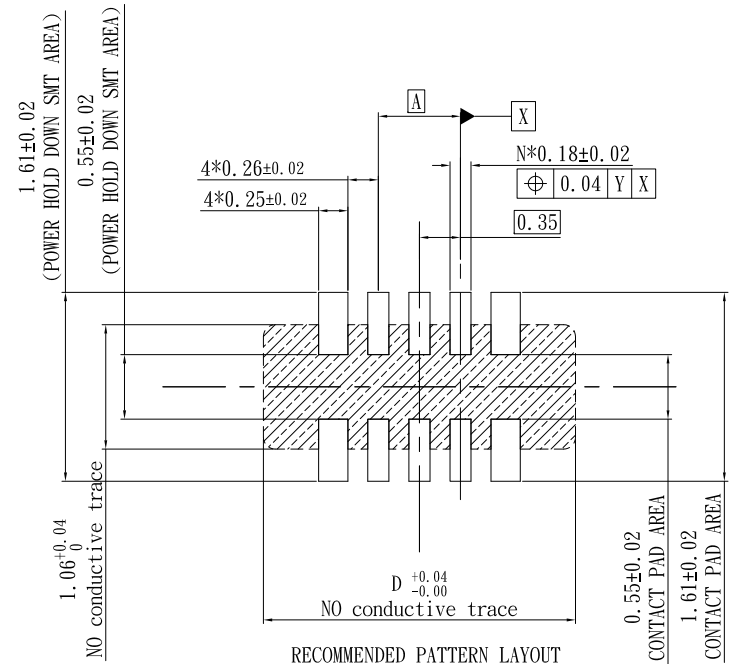
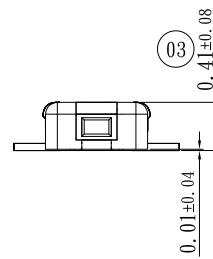
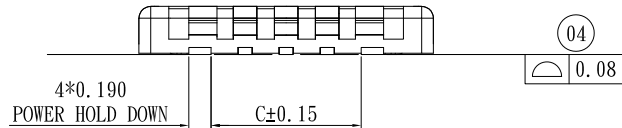
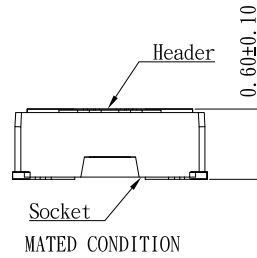
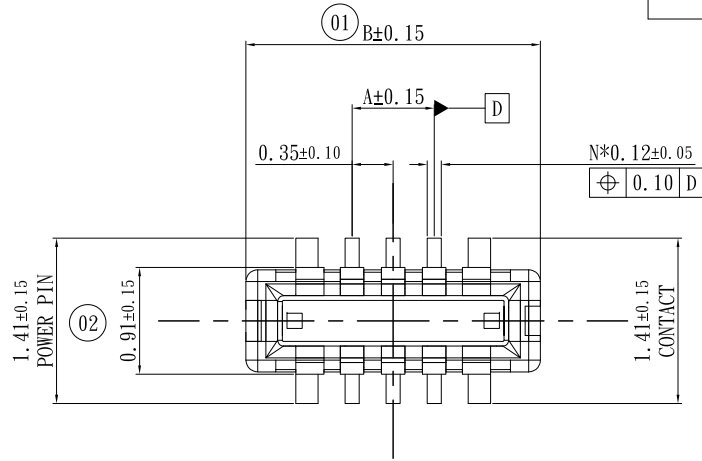


General tolerance		P / N			TITLE		0.35 Pitch AH2 Board to Board Mating height 0.6mm Socket PACKING SPEC.	
DIMENSION	ANGLES	20-AH20S-XXB00-001			D / N		20-AH20S-XXB00-001	
.X ± 0.35 .XX ± 0.25 .XXX ± 0.15	X° ±5° X.X° ±3°	PREP.	Wayne	Original Date	2023/1/9		SCALE	UNIT
		CHK.	Steven		1:1	mm	REV.	SHEET
		APPD.	Taylor		X1	1/1	ATC ASSEM TECHNOLOGY CO., LTD.	

Customer

REV.	ECN NO.	DESCRIPTION	DATE	PREP.	CHK	APPR.
X1	DW002119	NEW RELEASE	2022. 12. 29	Wayne	Steven	Taylor

NUMBER OF CONTACT	A	B	C	D
2	0	1.81	0.58	1.96
6	0.70	2.51	1.28	2.66
8	1.05	2.86	1.63	3.01
10	1.40	3.21	1.98	3.36
12	1.75	3.56	2.33	3.71
16	2.45	4.26	3.03	4.41



- NOTES :
- MARK "XX" IS MAJOR DIMENSION.
 - COPLANARITY : 0.08 MAX.
 - RoHS Compliant
 - Part No. : 20-AH20H-XXA00-001

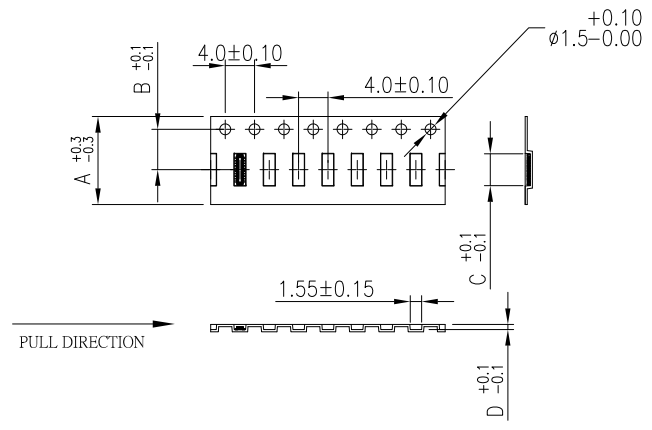
No. OF SERIES _____
 H : HEADER _____
 _____ Contacts No.

ITEM	DESCRIPTIONS	QTY.	MATERIAL	FINISH	REMARKS
①	HOUSING	1	HIGH TEMP.PLASTIC	BLACK	UL94-V0
②	CONTACT	-	COPPER ALLOY	Contact area: Gold Flash over Ni 50µ" Min. Solder area:Gold Flash over Ni 50µ" Min.	-
③	POWER PIN	2	COPPER ALLOY	Contact area: Gold Flash over Ni 50µ" Min. Solder area:Gold Flash over Ni 50µ" Min.	-

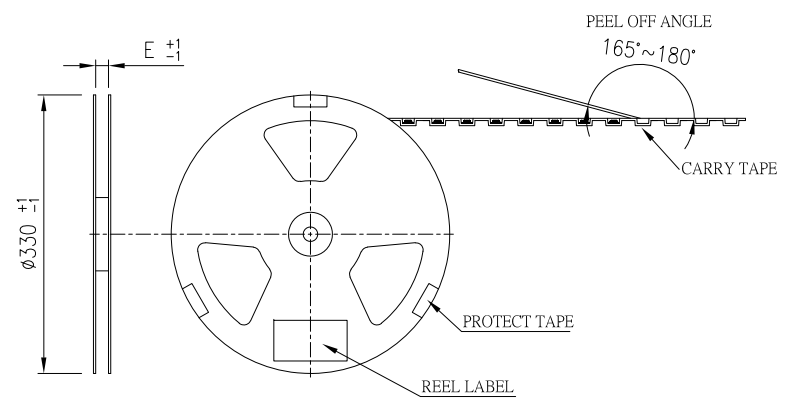
General tolerance		P / N		TITLE	
DIMENSION	ANGLES	20-AH20H-XXB00-001		0.35 Pitch AH2 Board to Board Mating height 0.6mm Header Approval	
.X ±0.30	X. ° ±2°	PREP.	Wayne	Original Date	2022. 12. 29
.XX ±0.20	X.X' ±1°	CHK.	Steven	SCALE	UNIT
.XXX ±0.15	X.XX' ±0.5°	APPD.	Taylor	16:1	mm
				REV.	SHEET
				X1	1 / 1

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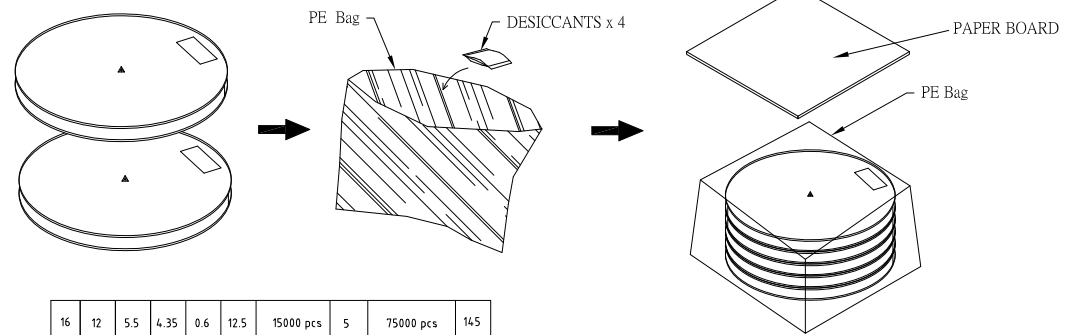
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			X1	PS000075	NEW RELEASE	2023.1.9	Wayne	Steven	Taylor



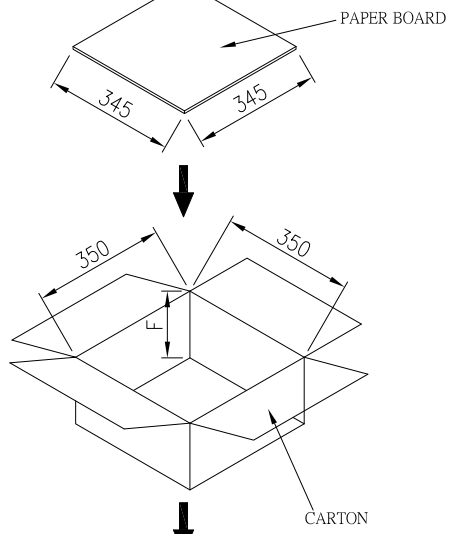
Reel package (EIAJ ET - 7200B) MATERIAL : PS



Note :
 Part No. : 20-AH20H-XXB00-001
 No. Of Series
 H : Header Contacts No.



16	12	5.5	4.35	0.6	12.5	15000 pcs	5	75000 pcs	145
12	12	5.5	3.65	0.6	12.5	15000 pcs	5	75000 pcs	145
10	12	5.5	3.30	0.6	12.5	15000 pcs	5	75000 pcs	145
8	12	5.5	2.95	0.6	12.5	15000 pcs	5	75000 pcs	145
6	12	5.5	2.60	0.6	12.5	15000 pcs	5	75000 pcs	145
2	12	5.5	1.90	0.6	12.5	15000 pcs	5	75000 pcs	145
PIN	DIM A	DIM B	DIM C	DIM D	DIM E	Reel	Reels	Carton	DIM F



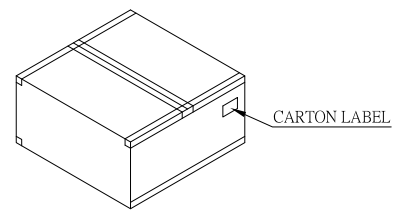
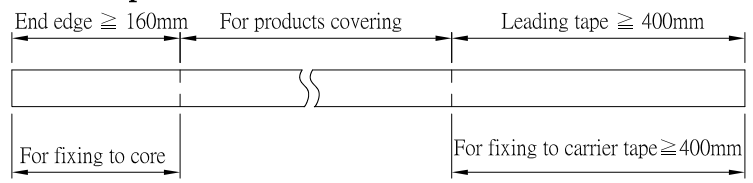
CARTON LABEL (10 * 6 * 1 mm)

Description	
Part No.	
Quantity	
N. W	
G. W	

REEL LABEL (10 * 6 * 1 mm)

Assem Technology Co., Ltd	
Description	
Part No.	
Quantity	
Date Code	

Cover Tape MATERIAL : PET



General tolerance		P / N			TITLE		0.35 Pitch AH2 Board to Board Mating height 0.6mm Header PACKING SPEC.	
DIMENSION		ANGLES		20-AH20H-XXB00-001		D / N		20-AH20H-XXB00-001
.X ± 0.35 .XX ± 0.25 .XXX ± 0.15		X° ± 5° X.X° ± 3°		PREP.	Wayne	Original Date	2023/1/9	
				CHK.	Steven	SCALE	UNIT	REV.
				APPD.	Taylor	1:1	mm	X1
						SHEET	1/1	
						ATC ASSEM TECHNOLOGY CO., LTD.		

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Change List

Date	Version	Change List	Maker
2021/05/20	X1	New Version	Wayne
2021/06/28	X2	PART NO. Update	Wayne
2021/11/10	X3	Item 6.3 & Item 6.5 & Item 6.6 & Item 7.1 & Item 7.2 & Item 8.2 Update	Wayne
2022/05/31	X4	Item 5.2 & Item 6.3 & Item 6.4 & Item 8.1 Update	Wayne
2022/08/02	X5	Item 3.1 Update	Wayne
2022/11/01	X6	Item 7.1 & Item 7.2 Update	Wayne

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PRODUCT NAME : 0.35mm pitch mating height 0.6mm BTB Connector

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MATERIAL REFERENCE TABLE 12

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PRODUCT NAME : 0.35mm pitch mating height 0.6mm BTB Connector

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SPECIFICATION OF PRODUCT

1. Scope:

This specification covers the requirements of product performance, and test methods provisions of 0.35mm pitch mating height 0.6mm with power pin Board-to-Board connector.

2. Applicable documents:

The following document from a part of this specification to the extent specified herein. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

3. Requirements:

3.1. Materials:

Signal Terminal (Socket /Header): Copper Alloy.

The plating description is based on product drawing

Power Terminal (Socket /Header): Copper Alloy.

The plating description is based on product drawing

Housing: Heat Resistance Plastic (UL 94V-0), Black.

3.2. Rating

3.2.1. Operating Conditions

Rated current: Signal terminal 0.3A per pin /Power terminal 3A Max. per pin

Rated voltage: 30V AC/DC

Operating temperature: -40°C ~ 85°C

Operating humidity: 85%R.H max.

3.2.2. Storage Conditions

Storage temperature: -25°C ~ 60°C

Storage Humidity: 85%R.H max. (No freezing or condensation)

4. Manufacture Place :

No.17, Minquan ST., Tucheng Dist., New Taipei City 23679, TAIWAN

PRODUCT NAME : 0.35mm pitch mating height 0.6mm BTB Connector

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5. Electrical Performance:

No.	Items	Requirements	Test Procedures
5.1	Breakdown Voltage	150V AC for 1minute (Initial stage)	In accordance with EIA 364-20 a) Test voltage, 150V AC (rms) b) Duration, 60 seconds c) Measurement, neighboring contacts and contact to shell.
5.2	Insulation Resistance	1000MΩ Min.(initial) After test : 500MΩ Min.	In accordance with EIA 364-21 a) Test voltage, 100V DC b) Measurement, neighboring contacts and contact to shell.
5.3	Contact Resistance	Signal circuit: 70mΩ Max. initial 100mΩ Max. after test. Power/GND circuit: 20mΩ Max. initial 50mΩ Max. after test.	In accordance with EIA-364-23. a) 20mV max. DC for the open circuit voltage b) 10mA DC for the closed circuit voltage
5.4	Temperature Rising	Over ambient $\Delta T 30^{\circ}\text{C}$ Max.	The temperature rise above ambient shall not exceed 30°C at any point when power up (see below) a) Signal circuit 0.3 A max. per contact. Power/GND circuit 3.0 A max. per contact. b) Ambient conditions, still air at $25 \pm 5^{\circ}\text{C}$. c) Header and Socket connectors shall be soldered to boards. When the connectors are mated, the board traces shall serially interconnect all the signal and ground contacts. d) Thermocouple shall be located near the interface of the center contact

PRODUCT NAME : 0.35mm pitch mating height 0.6mm BTB Connector

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6. Environmental Performance:

No.	Items	Requirements	Test Procedures
6.1	Thermal Shock	<p>5 cycles</p> <p>Contact resistance After test: Signal circuit: 100mΩ Max. Power/GND circuit: 50mΩ Max. Insulation resistance : 500MΩ Min. AC 250V(rms) for 1 minute Appearance : No abnormality.</p>	<p>The mated connectors are tested in accordance with EIA 364-32 and the following details shall apply:</p> <p>a) Temperature range between -55 to +85°C b) Temperature transfer rate, less than 1 minute. c) Temperature dwell, 30 minutes at each temperature extreme. d) Duration, 5 cycles.</p>
6.2	High Temperature Life	<p>Contact resistance After test: Signal circuit: 100mΩ Max. Power/GND circuit: 50mΩ Max. Appearance : No abnormality</p>	<p>The mated connectors are tested in accordance with EIA 364-17</p> <p>a) Temperature, 85±2°C b) Duration, 250 hours.</p>
6.3	Humidity (Steady State)	<p>Contact resistance After test: Signal circuit: 100mΩ Max. Power/GND circuit: 50mΩ Max. Insulation resistance : 100MΩ Min. DC 100V(rms) for 1 minute Appearance : No abnormality.</p>	<p>The mated connectors are tested in accordance with EIA 364-31 and the following details shall apply:</p> <p>Appearance : No abnormality b) Temperature, 40±2°C c) Humidity, 90 to 95RH%. d) Duration, 240 hours.</p>
6.4	Humidity (Cycling)	<p>Contact resistance After test: Signal circuit: 100mΩ Max. Power/GND circuit: 50mΩ Max. Insulation resistance : 100MΩ Min. DC 100V(rms) for 1 minute Appearance : No abnormality.</p>	<p>The mated connectors are tested in accordance with EIA 364-31, method III.</p> <p>a) Temperature, 25 to 65°C b) Humidity, 90 to 98RH%. c) Duration, 10 cycles / 240 hours.</p>
6.5	Salt Spray	<p>Contact resistance After test: Signal circuit: 100mΩ Max. Power/GND circuit: 50mΩ Max. Appearance : No abnormality</p>	<p>The mated connectors are tested in accordance with MIL-STD-202G method 101E Condition B and the following details shall apply:</p> <p>a) Chamber temperature, 35 ± 2°C b) Salt water density, 5 ± 1% by weight. c) Duration, 48 hours.</p>

PRODUCT NAME : 0.35mm pitch mating height 0.6mm BTB Connector

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6.6	H ₂ S Resistance	Contact resistance After test: Signal circuit: 100mΩ Max. Power/GND circuit: 50mΩ Max. Appearance : No abnormality	The mated connectors are tested in Test Condition: a) Appearance: No abnormality. b) Chamber temperature, 40°C c) Humidity, 80 ± 5RH%. d) Concentration, 3 ± 1ppm. e) Duration, 48 hours.
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7. Mechanical Performance:

No.	Items	Requirements	Test Procedures
7.1	Mating Force	Connector Mating Force: 2Pin Type : 8.8N Max 6Pin Type : 13.3N Max 8Pin Type : 15.5N Max. 10Pin Type : 17.7N Max. 12Pin Type : 20N Max. 16Pin Type : 24.4N Max.	In accordance with EIA 364-13 and the following details shall apply: a) Cross head speed, 25+/-3 mm/min. b) Mating Force, 2.0N x (n+6) Max. initially. c) Un-mating Force, 0.15N x (n+6) Min. after 10 cycles
7.2	Un-mating Force	Connector Un-mating Force: 2Pin Type : 1.2N Min. 6Pin Type : 1.8N Min. 8Pin Type : 2.1N Min. 10Pin Type : 2.4N Min. 12Pin Type : 2.7N Min. 16Pin Type : 3.3N Min.	

PRODUCT NAME : 0.35mm pitch mating height 0.6mm BTB Connector

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7.3	Vibration	<p>Appearance no damage, loose part nor crack.</p> <p>Contact resistance After test: Signal circuit: 100mΩ Max. Power/GND circuit: 50mΩ Max. Discontinuity : 1μs MAX. Appearance : No abnormality</p>	<p>In accordance with EIA 364-28 and the following details shall apply:</p> <p>a) Discontinuity: 100mA DC, no discontinuity greater than 1μs shall occur.</p> <p>b) Appearance : No abnormality.</p> <p>c) Frequency: 10-55-10Hz / approx., 1 minute.</p> <p>d) Direction: 3 mutually perpendicular directions.</p> <p>e) Total amplitude: 1.52mm.</p> <p>f) Sweep duration: 2 hours for each direction, 6 hours totally.</p>
7.4	Shock	<p>Appearance no damage, loose part nor crack.</p> <p>Contact resistance After test: Signal circuit: 100mΩ Max. Power/GND circuit: 50mΩ Max. Discontinuity : 1μs MAX. Appearance : No abnormality</p>	<p>The mated connectors are tested in accordance with EIA 364-27 and the following details shall apply:</p> <p>a) Discontinuity: 100mA DC, no discontinuity greater than 1μs shall occur.</p> <p>b) Without physical damage.</p> <p>c) Type: 50G, 11 ms pulse duration, 1/2 Sine.</p> <p>d) Direction: 6 mutually perpendicular directions.</p> <p>e) Duration: 3 cycles each direction.</p>
7.5	Durability	<p>10 cycles</p> <p>Contact resistance After test: Signal circuit: 100mΩ Max. Power/GND circuit: 50mΩ Max..</p>	<p>In accordance with EIA 364-09 and the following details shall apply</p> <p>a) Appearance : No abnormality</p> <p>b) Automatic equipment Mating/Un-Mating: 500 ± 50 cycle/hour.</p>

PRODUCT NAME : 0.35mm pitch mating height 0.6mm BTB Connector

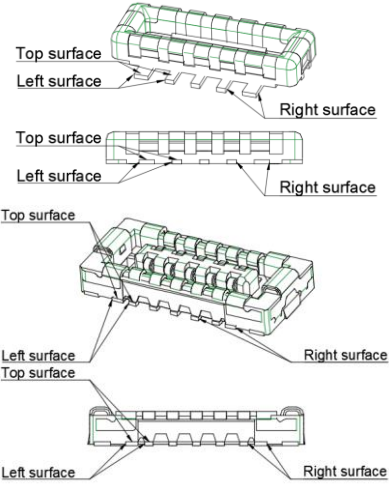
REV: X6

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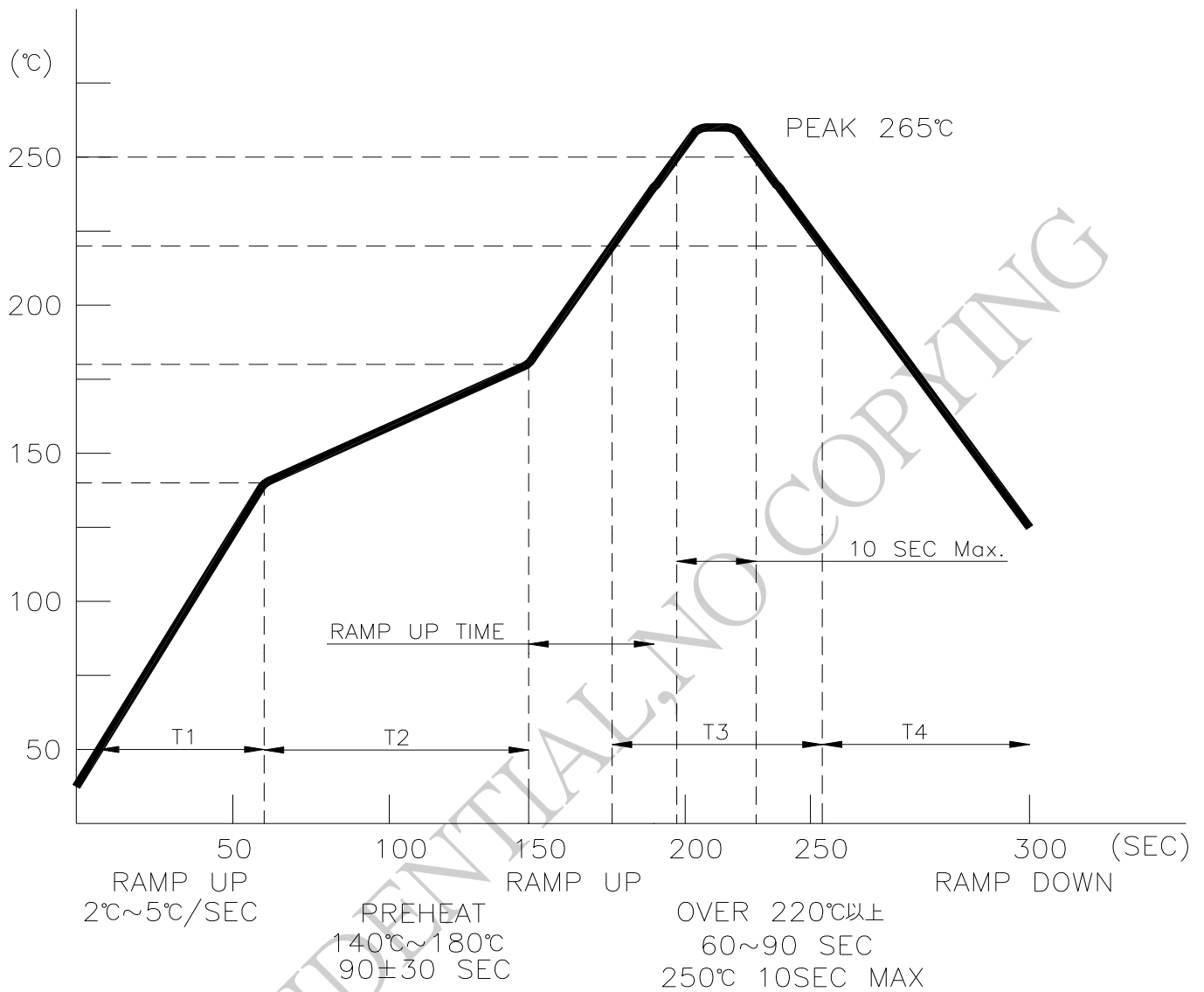
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8. Other Performance:

No.	Items	Requirements	Test Procedures
8.1	Solder Ability	<p>The dipped PIN shall be evenly wet.</p> <p>Top surface : More than 50% Left surface : More than 95% Right surface : More than 95%</p> 	<p>Test Condition:</p> <p>a) Solder bath temperature, $245 \pm 5^\circ\text{C}$ b) Immersion duration, 5 ± 0.5 seconds. c) R-type flux with 5 to 10 seconds immersion.</p>
8.2	Soldering Resistance Heat	<p>Header:</p> <p>Metal mask thickness : 0.08mm Opening ratio : 80% Appearance : No abnormality</p> <p>Socket:</p> <p>Metal mask thickness : 0.1mm Opening ratio : 100% Appearance : No abnormality</p>	<p>In accordance with EIA 364-56</p> <p>a) Without physical damage, 2 cycles. b) Peak Temperature, 250 to 265°C c) Pre-heating, 140 to 180°C with 60 to 120 seconds. d) Reflow profile refer to section #9.0</p>
8.3	Soldering Iron Resistance	Appearance : No abnormality	<p>a) Iron temperature, $350 \pm 10^\circ\text{C}$ b) Duration, 5 ± 1 seconds with 3 times.</p>

PRODUCT NAME : 0.35mm pitch mating height 0.6mm BTB Connector

9. Recommended Reflow Profile



T1:	Temperature Ramp Up Rate	2°C~5°C/SEC
T2:	Preheat: 140°C~180°C	90±30 SEC
T3:	Time Over 220°C	60~90 SEC
T4:	Ramp Down Rate During Cooling	4°C~7°C/SEC
	Peak Temperature	265°C Max

PRODUCT NAME : 0.35mm pitch mating height 0.6mm BTB Connector

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10. Test sequence

Test / Examination	Test Group											
	A	B	C	D	E	F	G	H	J	K	L	M
Contact Resistance		2,6	1,3,5	1,5	1,3	1,5	1,5	1,3	1,3			
Insulation Resistance				2,6		2,6	2,6					
Breakdown Voltage				3,7		3,7	3,7					
Temperature Rising	1											
Mating Force		1,5										
Un-mating Force		3,7										
Durability		4										
Vibration			2									
Shock			4									
Thermal Shock				4								
High Temperature Life					2							
Humidity (Steady State)						4						
Humidity (Cycling)							4					
Salt Spray								2				
H2S Resistance									2			
Solder-ability										1		
Soldering Resistance Heat											1	
Soldering Iron Resistance												1
Sample Size	5	5	5	5	5	5	5	5	5	10	10	10

PRODUCT NAME : 0.35mm pitch mating height 0.6mm BTB Connector

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MATERIAL REFERENCE TABLE

Parts Name	General Name	Model No.	Heat Resistance Level
Housing	Heat Resistance Plastic	LCP	UL94V-0
Socket Terminal	Croson Alloy	Copper Alloy	—
Header Terminal	Croson Alloy	Copper Alloy	---
Socket Power Terminal	Croson Alloy	Copper Alloy	—
Header Power Terminal	Croson Alloy	Copper Alloy	---

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